



Impact of diet on patients suffering from coronary heart diseases

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ABSTRACT : A study on patients suffering from coronary heart diseases has been under taken from cardiology and Medicine department of M.K.C.G. Medical College and Hospital, Berhampur, Odisha belonging to various age groups, sex, income and socio-economic status. This study reveals that diet is one of the contributing factors for coronary heart disease. It was conducted to know the dietary awareness of cardiac patients and the role of hospitals in taking care of the heart patients. In-adequate diet, busy schedule of work and ignorance of nutrient aspects of diet are leading the human beings towards death. Most of the respondents are now becoming more concerned about low-fat diet, exercise, stress management, yoga and meditation. From the investigation it was found that heart disease is no doubt a fatal disease but it can be dealt effectively by taking a balanced and an effective diet, to enjoy the sweetness of life.

How to cite this paper : Sethi, Jyotshna Mayee and Samantaray, Puspanjali (2015). Impact of diet on patients suffering from coronary heart diseases. *Internat. J. Med. Sci.*, **8**(1&2) : 42-46.

KEY WORDS :

Coronary heart
disease, Hypertension,
Atherosclerosis,
Dietary pattern

According to Joshi (2006) cardio-vascular diseases are the most potent killers, particularly so in advanced countries of the world. It is also the leading cause of death worldwide (Nayak, 2013). The incidence of hypertension (increase in blood pressure), heart attacks (mild to severe) and atherosclerosis has increased multifold. There are many causes leading to these diseases. Now-a-day's life is a race in which each person tries to compete with the other in terms of wealth, status, success, reputation and several such ideals, through fair and unfair means. The accompanying tension and worries, the craving for the cigarette, the compelling peg, the hectic mode of travel and overweight, all

drag the person towards cardio-vascular disease.

Cardio-vascular disease (CVD) is no doubt a general term describing diseases of the heart and blood vessels. Coronary Heart Disease (CHD) is the most common form of CVD and is caused by atherosclerosis in the large and medium sized arteries that supply the heart muscle with oxygen and nutrients. Cardio-vascular disease remains the leading cause of death in so many countries. Today CHD is highly predictable, preventable and treatable. There is several fold increase in coronary heart disease since 1960 in urban part of India. In India the onset of CVD is at an early age; it is more severe and the progression is rapid and aggressive. The

Paper History :

Received: 11.03.2015;
Accepted: 25.09.2015

incidence of cardio-vascular disease is 47 per cent in developing countries while 27 per cent in developed countries among people below 70 years. Those in the higher socio-economic group are the first ones to adopt to an adverse life style such as high saturated fatty acid diet, sedentary life style and cigarette smoking. They are also the first to revert to a healthier life style. Hence, the rich in the developing countries and the poor in the developed countries consume the highest amount of the high saturated fatty acid (Srilakshmi, 2011).

The World Health Organization (WHO) reported that in the year 2005 cardio-vascular disease (CVD) caused 17.5 million (30%) of the 58 million deaths that occurred worldwide. It had been projected that by the year 2010, 60 per cent of the world's patients with heart disease would be in India. Coronary Artery Disease (CAD) is a multifactorial disorder that is thought to result from an interaction between genetic background and environmental factors such as diet, smoking, drinking alcohol and physical activity. Major risk factors are sedentary lifestyle, cigarette/bidi smoking, alcohol intake hypertension, high Low Density Lipid (LDL) cholesterol, low High Density Lipid (HDL) cholesterol and diabetes mellitus. Some other factors that influence CHD risk are obesity, family history of premature CHD, insulin resistance, hypertriglyceridaemia, small dense LDL particles, lipoprotein A, serum homocysteine and abnormalities in several coagulation factors. Interactions between genetic and environmental factors influence progression of pathological processes clinical characteristics of disease and susceptibility to therapeutic treatment (Dhar *et al.*, 2012).

In the present study the following objectives are taken:

- To find out the factors responsible for the coronary heart disease.
- To study the importance of modified diet.
- To assess the dietary knowledge of the coronary heart patients.
- To study the dietary practices of CHD patients after consultation.

Thirty samples both male and female were taken from the Cardiology and Medicine department of M.K.C.G. Medical College and Hospital, Berhampur of Ganjam district. All newly diagnosed patients of stable/unstable angina and myocardial infraction admitted in

the cardiology and medicine department during the study period were selected.

In this study interview method was used for data collection. General information pertaining to age, education, occupation, income, religion, family type and food habits were collected. In medical history the patients were enquired about family history of CHD or any associated disease like diabetes or hypertension. Information on the patient's diagnosis as stable angina, unstable angina or myocardial infarction was collected from medical records. Information was also gathered on the outcome of the disease during the study period and medications given during their stay at hospital. Data on the lifestyle pattern of the subjects was collected which included smoking, alcohol consumption, tobacco chewing, physical activity, stress and about dining out. In dietary information general meal pattern was noted on the last three days and 24 hour recall method along with the number of meals per day.

The risk of CHD increases progressively with age and it is most common after the age of 60 years according to Gupta *et al.* (2009) but in this study it is found that it is most common after the age of 55 years and it is similar with the findings of Srilakshmi (2011). CHD generally affects more men than women, but from the age of 50 the chances of developing the condition are similar for both men and women. A study demonstrated that serum cholesterol was directly related to CHD mortality even at these lower levels. Several guidelines have been proposed for prevention and management of the disease. Dietary factors, including high intake of saturated fat and cholesterol, low intake of food sources with antioxidant nutrients such as vitamin-E and vitamin-C are associated with the risk and manifestations of this disease. High calorie foods are restricted for CHD patients because if the body weight has been increased the workloads of the heart also increased.

Table 1 shows the age distribution of the patients. With ageing there is progressive and marked increase in the risk of development of atherosclerosis. It is known that the level of serum cholesterol and other lipid fractions increase with age. The risk of CHD increased progressively with age and it is most common after the age of 55 years which was 40 per cent. The prevalence of CHD has increased in younger population in recent years. 13.3 per cent patients were among the age of 25-

34 years

Table 2 highlights the economic status of the family. A sedentary life style and low cardio respiratory fitness are each associated with a two fold or more increase in CHD risk. Exercise is beneficial to CHD patients. Maximum patients 53.3 per cent were in middle income group. In the case of low income group patients they

were suffering very rare for CHD. Those in the higher socio-economic group are the first ones to adopt to an adverse life style such as high saturated fatty acid diet, sedentary life style and cigarette smoking. They are also the first to revert to a healthier life style. Thus, the poor in the developed countries and the rich in the developing countries consume the highest amount of the high

Table 1 : Age of the patient

Sr. No.	Age	Respondent no.	Percentage
1.	25-34	4	13.3%
2.	35-44	4	13.3%
3.	45-54	10	33.3%
4.	Above 55	12	40%

Table 2 : Economic status of the patients

Sr. No.	Income	Respondent no.	Percentage
1.	High income	10	33.3%
2.	Middle income	16	53.3%
3.	Low income	4	13.3%

Table 3 : Lipid profile (mg/dl)

Sr. No	Lipid profile	Respondent no.	Percentage
Total cholesterol			
1.	Desirable (<200)	13	43.3%
2.	Borderline high (200-239)	11	36.6%
3.	High (≥ 240)	6	20%
LDL cholesterol			
1.	Optimal (<100)	4	13.3%
2.	Near or above optimal (100-129)	9	30%
3.	Borderline high (130-159)	11	36.6%
4.	High (160-189)	6	20%
HDL cholesterol			
1.	Low (<40)	19	63.3%
2.	Optimal (40-60)	11	36.6%
Triglycerides			
1.	Normal (<150)	18	60%
2.	Borderline high (150-199)	8	26.6%
3.	High (200-499)	4	13.3%

Table 4: Food consumption pattern

Sr. No.	Consumption	Respondent no.	Percentage
1.	High calorie	17	57.6%
2.	Low calorie	6	20%
3.	Normal food	7	23.3%

saturated fatty acid. Which is the major cause for CHD.

Table 3 reflects lipid profile of the patients. It was divided into 4 parts. An elevated level of total cholesterol is the strongest risk factors for CAD. The highest 43.3 per cent people were in desirable conditions while 20 per cent have cholesterol level high. An elevated LDL-cholesterol concentration is a risk factor for coronary artery disease. Plasma concentrations of LDL are influenced by both genetic and environmental factors. Although it is difficult to alter genetic factors, modifiable environmental factors such as smoking or dietary patterns could be targeted in preventive interventions aimed at lowering LDL. 36.6 per cent patients have borderline high and 13.3 per cent patients were in optimal stage. Low HDL is associated with increased risk of CAD even if triglycerides and total cholesterol levels are not elevated. A decrease in 10 mg/dl of HDL confers the same risk for CAD as 30 mg/dl increase in LDL. 63.3 per cent patients have low HDL cholesterol and 36.6 per cent were in optimal stage. Hypertriglyceridaemia has also been considered to increased risk for CAD. In these conditions 60 per cent patients were in normal conditions while 13.3 per cent patients were in high level (Lichtman *et al.*, 2008; de Lorgeril *et al.*, 2008; Hu and Willet, 2002 and Freedman *et al.*, 2008).

Table 4 represents the food consumption pattern of the patients. In general, a reduction in the calorie intake by about 800 to 1000 kilocalories advised to return to a normal weight. A patient in bed may be given a 1000-1200 kilocalorie diet. Increased body weight has its greatest effect by increasing the workload of the heart. Most of the patients were taking high calorie foods while only 20 per cent patients take low calorie foods.

After the investigation it was found that cardiac disorder is a deadly disease, which can affect to any age group, sex, income groups and any socio-economic status. So in this modern society no body has time to take care of own health, food etc. but at the same time the society is here to provide health-counseling centers, diet counseling centers, gym for maintaining good health etc.

There are controversies regarding dietary recommendations in preventing cardiac disease. It has been shown that several risk factors leads to a heart disease but eliminating of any one factor cannot be considered as a remedy. Cholesterol has been much talked about in relation to heart disease but it is not cholesterol alone but the intake of high levels of lipids in the food

that is more relevant.

Fibre is another constituent of the diet, which has shown hypocholesteremic effects. Effective dietary modification alone may achieve lowering the LDL-cholesterol without the need for medicines. Lowering intake of dietary cholesterol, increasing the intake of anti-oxidation vitamins C and E and increasing the intake of yellow fruits and vegetables.

Dietary fat should be control in quality and quantity by substituting puts in the diet for part of the saturated fats, which were customarily consumed earlier. A normal person fulfills about 15-20 per cent of these calories requirements through fat intake. Predominantly, saturated fats such as butter, ghee, Vanaspati, lard and margarine should be restricted and preferably avoided. Vegetable oils are permitted in moderate amounts, in the best recommendation being sunflower oil, followed by corn oil, sesame oil, soybean oil and. The reason for recommending sunflower oil for coronary heart patients is because of its high linoleum acid content as compared to the other oils. Coconut and palm oils contains high amount of saturated fatty acids and should be best avoided. Cholesterol intake through diet should be curtailed. Foods containing high amount of cholesterol like cheese, cream, chocolate, cakes eggs etc. should be restricted. Similar work to the related topic was also done by Khogare and Kolgane (2012); Borbora *et al.* (2008); Pereira *et al.* (2004); Kannel (1997); Jarrett *et al.* (1999); Logue *et al.* (2011); Luc *et al.* (2002) and Schaefer *et al.* (1994).

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